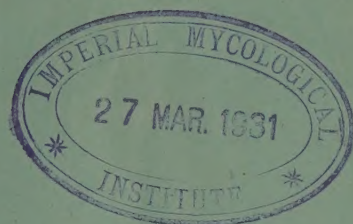


IMPERIAL DEPARTMENT OF AGRICULTURE FOR THE WEST INDIES.



Report

ON THE

AGRICULTURAL DEPARTMENT

ANTIGUA.

1929-30.

ISSUED BY THE IMPERIAL COMMISSIONER OF AGRICULTURE FOR THE WEST INDIES.

1931.

Report on the Agricultural Department, Antigua,
For the Period April, 1929—March, 1930.

LETTER OF TRANSMITTAL.

C. A. 220.

31st May, 1930.

Sir,

I have the honour to transmit herewith the Report on the working of the Antigua Department of Agriculture for the year ended 31st March, 1930.

2. *The Report has been prepared, in the absence of Mr. Gallwey, who was on leave, by Mr. Warneford, who was about to proceed on vacation leave, and in consequence, is somewhat curtailed.*

3. *The Report deals with the usual matters of Agricultural interest in Antigua, and there are but few points that call for comment.*

4. *Reference is made to the status of the Moth Borer as a pest of sugar-cane and the Pink Bollworm as a pest of cotton. The former continues to be the most important insect pest in Antigua while the latter, in the 1928-29 and the 1929-30 seasons was particularly scarce. The investigations into the bionomics of the gumming disease were carried on throughout the year under review and a final report submitted by Mr. Illingworth.*

5. *The sugar cane crop was small by comparison with recent previous years. This was largely due to the long drought followed by the September storm in 1928. The area planted for the 1929-30 Cotton crop was larger than that of the previous season but the yield, from several causes was not so good.*

6. *Trials with vegetable indicate that there is hope for the development of a minor industry along this line. The cautions that are given regarding the prospects of establishing a lime industry should be given serious consideration.*

I have the honour to be,

Sir,

Your most obedient servant,

H. A. BALLOP,
*Commissioner of Agriculture,
Imperial College of Tropical Agriculture.*

*The Honourable,
The Colonial Secretary,
Antigua, B.W.I.*

Seeds.

Aleurites Montana. (Tung Oil).

Ipomea azurea.

Citrus aurantium var bigaradia. (Sour orange).

Pimenta acris. (Bay Tree).

Calophyllum calaba. (Galba).

The seeds of Aleurites, P. acris and Galba failed to germinate, the germination of the sour orange seeds was poor. Ipomea azurea proved to be an excellent decorative plant.

Plant and Seed Distribution.

The following plants and seeds were distributed during the period under review.

Onion slips	20350
Tomato slips	780
Guatemala Grass	2000 cuttings
Seedling Limes	400
Fruit Trees	85
Casuarinas	173
Eucalyptus	49
Miscellaneous decorative plants	372
Vegetable seeds	515 packets.
Flower seeds	19 „

Plot Experiments at Skerretts Experiment Station.

Cotton Experiments. Progeny rows were planted from the eleven selections made at Yeptons estate, referred to in the report for 1928-29. Flowers on 30 plants in each row were self fertilised and at the time of reaping all the selfed bolls from any one tree were placed together in an envelope and a note made of the number of selfed bolls per tree and the locular value of these bolls. These were then reserved for laboratory examination.

Owing to the fact that the crop was late and reaping was not completed until after the end of March, it is not possible to include the results of laboratory examinations in this report.

The unselfed bolls from each of the eleven progeny rows were kept separately, the yields of seed cotton being as follows.

Row No.	Yeptons Selections No.	Actual Yield.	Calculated yield per acre. (approximately)
1	40	4 lb	436 lb
2	147	4 „	436 „
3	160	4 „	436 „
4	173	6 „	654 „
5	221	4.5 lb	490 „
6	329	3 „	327 „
7	424	3 „	327 „
8	435	4 „	436 „
9	453	3 „	327 „
10	470	5 „	545 „
11	472	4 „	436 „

Sweet Potatoes.

Plots were planted with the New Jersey type of Sweet potato for the purpose of providing a supply of cuttings. Unfortunately this variety which is the best for the Canadian market, under conditions at Skerretts tends to form potatoes of irregular and string like shapes instead of the oval tubers suitable for shipment. The best yield was 1085 lb tubers from a plot 1/10 acre in extent *i.e.* 10850 lb per acre.

Pineapples.

Two plots planted under pineapples in October and November, 1928 made poor progress during the season under review. The soil at Skerretts is far too heavy to suit this crop.

Globe Artichokes.

A plot of these vegetables was planted in October, 1929. It was a complete failure.

Yams.

Eight varieties were grown during the season, chiefly with the object of providing some quantity of planting material. The following table shows the varieties, the yields actually obtained and the calculated yield per acre.

Variety	Area.	Actual Yield. †	Calculated yield per acre.
Bottle Neck Lisbon	1/60 acre.	178 lb	10680 lb
Lisbon	1/60 "	176 "	10560 "
Light Red	1/60 "	360 "	21600 "
Bugle Horn	1/60 "	141 "	8460 "
Oriental	1/60 "	190 "	11400 "
Seal Top	1/60 "	97 "	5820 "
Crop	1/30 "	186 "	5580 "
Antigua Cush Cush	1/20 "	266 "	5320 "

Eddoes and Tannias.

Six varieties were cultivated during the season 1929-30.

Variety.	Area.	Actual Yield.	Calculated yield per acre.
Tannia Roliza	1/35 acre.	120 lb	4200 lb
Tannia Roliza White	1/70 "	62 "	4340 "
Tannia Yellow	1/70 "	31 "	2170 "
" White	1/70 "	62 "	4340 "
" Eddoes	1/70 "	39 "	2730 "
" Priete	1/70 "	51 "	3570 "

Irish Potatoes.

A plot of Irish Cobbler potatoes planted in January, 1930 and reaped in March yielded 309 lb. good potatoes, equivalent to 3090 lb. per acre. It would appear that with care and reasonable weather good returns can be expected with this crop.

Green Dressings.

Besides pigeon peas (*Cajanus indicus*) which made fair growth, plots of the following crotalaris were planted, *C. Usaramoensis*, *C. sericea* and *C. striata*. Germination was poor and there was an uneven stand which gave comparatively little seed.

Work in Connection with Insect and Fungus Pests.

MOTH BORER. (*Diatrea saccharalis*) This insect was prevalent during the year under review and continues to do considerable damage. It is by far the most important pest in Antigua.

COTTON CATERPILLAR. (*Alabama argilacea*) was very prevalent in certain districts and caused considerable damage. Frequent showers during the period of maximum attack hindered control by dusting with Paris Green.

PINK BOLL WORM. (*Platyedra gossypiella*) did no damage during the period under review. This pest which has been responsible for serious losses in the past years has scarcely been reported since the reaping of the 1927-28 crop.

GUMMING DISEASE OF SUGAR CANE. During the period May, 1929, to March 31st, 1930, Mr. J. L. Illingworth M.A. Curator, Virgin Islands was seconded for gummosis investigations and attached to the Federal Department of Agriculture in whose annual report will be found a summary of his work, which is also to be published in extenso in a pamphlet form.

Agricultural Exports.

The following Table shows the chief agricultural products exported during the years 1928 and 1929.

Article	1928.		1929	
	Quantity.	Value.	Quantity.	Value.
Sugar (Crystals)	18,906 tons.	£245,780	9,700 tons.	£126,100
Molasses (V. Pan)	529,800 galls.		270,800 galls.	£1,956
" (Muscovado)	43,500 "			
Cotton (Lint)	17,700 lb.	£1,770	61,540 lb.	£5,641
" Seed	45,850 "	£110	31 tons.	£161

Article.	1928.		1929.	
	Quantity.	Value.	Quantity.	Value.
Lime juice (raw)	840 gals.	£42	1,120 gals.	£56
" " (conc.)	2,350 "	£457	1,440 "	£300
Green Limes			190 brls.	£238
Lime Oil	108 gals.	£1,215		
Tamarinds		£611		£4
Hides and Skins		£297		£133
Onions	1,650 lb.		11,850 lb.	£148
Hardwood		£60		
Horses	30	£300		£40
Cattle	1	£10		£75
Asses	20	£40		£3
Sheep	2	17/-		£1

Progress in the Chief Industries.

Sugar. The drought experienced in 1928 resulted in a very poor crop in 1929 only 9700 tons being exported. Prices realised moreover were low (£11 16. 4. per ton) and considerable losses were involved. The rainfall in 1929 was on the whole fair and well distributed so that the 1930 crop which started at the end of January, 1930, promised to be above the average.

Cotton. Excellent returns were obtained from the acreage planted in September and October, 1928, the remarkable freedom from pink boll worm allowing high yields to be obtained almost throughout the island—the average being over 270 lb lint per acre.

The close season during 1929 was the period June 1st—July 31st and planting commenced in August.

The acreage planted for the 1930 crop was approximately 815 acres but unfortunately, poor germination, heavy rains in August followed by a drought in September and severe attacks of the cotton caterpillar coinciding with showery weather in November and December considerably reduced the output.

Progress in Minor Industries.

Vegetables. Experiments in the growing and shipping of tomatoes to Canada were again undertaken. The work was carried out under the direction of the Federal Department of Agriculture and the report on the experiments appears in the annual report of that Department.

Fair returns were obtained at Skerretts and the tomatoes shipped sold at \$2.00 per crate of 15 lb. The expenses however were very heavy owing to the unsuitable soil at the experiment station and to severe attacks of caterpillars.

Limes. There was a fall in the value of lime products exported during 1929. This was largely due to the after effects of the 1928 hurricane.

Increased interest is being taken in this crop as a result of the high prices now ruling for lime products especially lime oil and the area under limes is being increased. Lime growers in Antigua are reminded that while the lime plant can be grown profitably in many districts, lime cultivation is really marginal under the existing climatic conditions, and the plant will only flourish and yield economic returns when well treated.

Particular care must be given to the provision of efficient shelter belts and wind breaks, and to the conservation of soil moisture and humus through frequent mulching with vegetable matter. Steps must be taken to prevent the gradual dessication of valleys through the removal of the forest growth on the heights above, and indeed forest growth should be stimulated when possible by active reafforestation and at all times by doing everything possible to put a stop to the bush fires which are of annual occurrence during the dry season.

Experience in Dominica since the advent of red root disease has indicated the necessity in that island of planting limes only on immune stocks. Although red root is not known in Antigua the advantages of sour orange or rough lemon stocks;

which are deeper rooting than the lime and resist hurricane and drought better than the latter, should be considered in connection with all future cultivation.

The production of budded and grafted limes and the investigation of the suitability of various stocks for Antigua conditions will form an important part of the work of the Agricultural Department during the next few years.

Summary of Legislation affecting Animals, Plants, Crops, etc.

Swine Epidemic Act 3 of 1893 gives extended power to Board of Health for the prevention of the spread of disease among animals.

City of St. John's By-Law 13 of 1897. Registration of butchers and inspection of animals for slaughter of meat in market by Veterinary Surgeon and authorizes destruction of unwholesome food.

City of St. John's By-Law 13 of 1899. City By-Law for the purpose of dealing with cattle disease.

City of St. John's By-Law 2 of 1911 regulates the keeping of animals in municipal areas and inspection, etc., of stables in the city.

Ordinance 7 of 1913. An Ordinance to prohibit the introduction of mongoose into Barbuda.

Diseases of Animals Ordinance 16 of 1913 repeals and amends the law relating to contagious disease among animals. Animals and diseases clearly defined. Inspectors empowered to visit and inspect estate premises, etc. for diseased animals and to ensure that provisions are carried out. Suspected animals to be examined by Veterinary Surgeon and on his (positive) report shall be slaughtered.

Diseases of Animals (Amendment) Ordinance 8 of 1920. An ordinance to amend further the Diseases of Animals Ordinance 16 of 1913. States that the Governor in Council may by Order-in-Council revoke amend or vary any Order-in-Council issued under the provisions of this section.

Ordinance 10 of 1922. The Animals Tax Ordinance. An ordinance to provide for the taxation of certain animals (donkeys and horses).

Order-in-Council dated 19th July, 1923 rescinds the Order in Council dated 29th September, 1922 prohibiting the landing of animals of any kind from St. Christopher and Nevis.

Order-in Council dated 22nd May, 1924 under section 18 of the Diseases of Animals Ordinance 1913 prohibits the importation of all foreign animals when brought from the United Kingdom on account of *Foot and Mouth Disease*.

Statutory Rules and Orders 17 of 1929 Amendment of Order-in-Council dated 22nd May, 1924 under section 18 of the Diseases of Animals Ordinance, 1913 (Antigua No 16 of 1913) provides that cattle, sheep, pigs and goats will be allowed to be imported into Antigua provided that such animals have been detained and isolated under official veterinary supervision for a period of at least 14 days immediately before shipment at the Quarantine Station situated at the East India Dock, London.

Ordinance 5 of 1927 amends Animal Tax Ordinance 10 of 1922 stating that if the Governor is satisfied that hardships result from the tax he may remit or exempt such persons from payment of the tax.

Ordinance 17 of 1927. An ordinance for the protection of turtles and tortoises (1) close season 1st June to 30th September (2) turtle eggs from 1st June to 30th September. (3) No turtle under 20lb in weight to be taken.

Ordinance 20 of 1929. The animals tax ordinance 1922 amendment ordinance 1929. Amending ordinance so that any horse or ass the age of which on the date provided for the making of the return in subsection 3 thereof does not exceed two years is exempt.

Statutory Rules and Orders No 25 of 1929. Importation of Swine Order 1929 dated November 19th 1929 made under section 18 of the Diseases of Animals Ordinance 1913 (Antigua 16 of 1913) prohibits the landing in Antigua of swine from St. Kitts Nevis.

Plants.

Plant Fumigation Ordinance 5 of 1905. To provide for the fumigation of plants imported into the Presidency.

Plant Protection Ordinance 16 of 1923. An Ordinance for the prevention and eradication of diseases and pests affecting vegetation.

Proclamation of 5th October 1929 under Plant Protection Ordinance 16 of 1923 prohibits the importation, except under licence to be granted by the Governor, of Sugar Cane and parts of Sugar Cane from all places, Banana plants and parts of Banana plants including their fruits, from British Guiana, Dutch Guiana, Central America any island or place in the West Indies *except* Barbados and the other islands of the Leeward Islands Colony, Rooted plants of the Citrus family from the United States of America, Jamaica, Cuba, Haiti and Santo Domingo, unless accompanied by a certificate signed by a responsible inspecting officer stating that the district from which such plants originate has not been affected by or has been free for the preceding two years of Citrus Canker.

Lime Plants and Parts of Lime Plants including their fruits from British Guiana, Trinidad, Dominica, St. Lucia and St. Kitts.

Cotton Seed and Seed Cotton and all packages, coverings, bags, or other articles or things which have been used as packages, etc. or any Cotton Seed, Lint Cotton, or Seed Cotton from all places, except small quantities of seed specially imported by the Agricultural Superintendent with the approval of the Governor. Sprouted Coconuts from Grenada, Trinidad and St. Vincent.

(Proclamation in force for one year from above date).

Agricultural Products.

The Produce Protection Ordinance 20 of 1922. All growers and sellers of produce to be licensed. Produce means cacao, maize, coconuts, limes and wood, the growth, produce or manufacture of the Presidency of Antigua.

Order-in-Council of 13 November 1922 adds pineapples and onions to Produce Protection Ordinance 20 of 1922.

The Export Duty Continuance Ordinance 1927 No. 24 of 1927 states that Export Duty Ordinance 1927 shall continue in force for one year until 31st day of December 1928.

Statutory Rules and Orders No. 11 of 1928 Order-in-Council dated April 16th 1928 under Produce Protection Ordinance 20 of 1922 adding *tamarinds* to the list of protected produce.

Ordinance 16 of 1929. Produce Protection Amendment Ordinance 1929. The payment of 2/- for a seller's licence is no longer necessary.

Crops.

SUGAR CANE.

Proclamation dated 14th April 1924 under Plant Protection Ordinance 16 of 1923 proclaiming Mosaic disease to be within the meaning of that Ordinance.

Regulations made by the Governor-in-Council dated 25th April, 1924 stating (1) the expression "Owner" includes occupier and person in charge of any land and (2) owner to give notice in writing to Chief Inspector if he suspects existence of disease "Mosaic" and of the extent of the disease. (Made under section 22 of the *Antigua Plant Protection Ordinance 16 of 1923*.)

Ordinance No. 21 of 1929. An ordinance to continue the export duty ordinance to December 31, 1930.

Cotton.

Cotton Traffic Ordinance 5 of 1906 regulates local traffic in cotton. No person to sell cotton (or purchase) without a licence; purchaser to keep a purchase book.

The Cotton Protection Ordinance 7 of 1922. An ordinance to provide for the protection of cotton.

The Cotton Protection Amendment Ordinance 5 of 1926 states during the close season as declared the provisions of the principal Ordinance shall so far as they are applicable apply to such other plants in like manner as they apply to cotton plants.

The Cotton Protection Regulations 1926 dated March 22, 1926 made under Cotton Protection Ordinance 7 of 1922 allowing the inspector without notice at all reasonable times during a close season, to enter upon any land for the purpose of ascertaining whether any Okra plants are growing or remaining on any such land during that season, and to destroy all such plants found thereon.

Ordinance 8 of 1927 inserts in Cotton Protection Ordinance 7 of 1922 between sections 4 and 5 the following:—4 (a) any occupier who shall at any time dispose of any cotton plants or any part thereof other than seed cotton whether the same be growing or remaining on any land occupied by him by any means other than *burning* shall be guilty of an offence.

Ordinance 14 of 1929. The Cotton Protection Ordinance 1922 Amendment Ordinance 1929. Any person who intends to plant cotton upon any land of which he is the occupier shall on or before the last day of the close season inform the police in the district of the area and situation of such lands.

Fruits.

Proclamation of February 15th 1930 under section 5 of the Plant Protection Ordinance No. 16 of 1923 prohibits the importation directly or indirectly from all places in the U.S.A., Central America, S. America, Bermuda, Spain, Italy and France of all pears, apples, peaches, nectarines, apricots, plums, cherries, grapes, citrus fruit and succulent fruit of every kind, provided that this prohibition shall not apply to dried fruit, preserved fruit, candied fruit, nuts, onions, potatoes or any other kind of bulb or tuber whatsoever not flowering or fruiting.

The Antigua Cotton Growers' Association.

During the period under review no change took place in the Board of Management.

Peasants cotton was again purchased at the Antigua Cotton Factory under the arrangement made in the season 1927-28; 75491lb seed cotton being bought at a first cost of \$5384.37—a subsequent payment of \$3019.64 as bonuses making the total payment to peasants \$8404.01.

Exhibitions.

An Agricultural show was held at the St. John's Boys' School on January 30th. Excellent exhibits of sugar cane, cotton, and minor agricultural products were shown. Unfortunately the weather was showery on the day of the exhibition and the attendance was not as good as on some previous occasions.

Correspondence.

During the period under review 151 letters were received and 603 despatched. Two hundred and forty-four minute papers were dealt with.

Expenditure and Revenue.

The following table shows the details of expenditure and the total receipts.

Expenditure.			Receipts.	
Salaries	£636	11 3	Sale of Plants and Seeds	
House Allowance	32	1 8	£56 5 6	
Travelling Allowances	113	10 2		
Minor Industries	140	2 5		
Upkeep Botanic Station	166	5 2		
Sugar cane and other Expts.	189	6 4		
Purchase Plants and Seeds	33	11 8		
Upkeep Orchard Plots	24	15 8		
Tools	13	3 1		
Planting and Maintaining Trees	61	4 11		
Printing Report and Contingencies	11	17 8		
Destruction Wild cotton and				
Okra plants	2	11 2		
Fumigation of Plants		7 0		
Making of Public Gardens	19	3 9		
Distribution Cotton Seed	13	2 8		
Agricultural Show	58	7 7		
	£1516	2 2		

Official Visits.

His Excellency the Governor Lieut. Col. T. R. St. Johnston C.M.G. visited the Botanic Station on several occasions.

Professor H. A. Ballou, O.N. M.Sc., Commissioner of Agriculture and Mr. G. A. Jones, Assistant Commissioner of Agriculture visited both the Botanic Station and the Experiment Station.

Lord Olivier and Mr. Semple of the West India Sugar Commission visited the Botanic Station.

Hon. A. E. Collens, F.I.C., F.C.S. Government Chemist and Superintendent of Agriculture also visited the Stations on several occasions.

RETURN OF RAINFALL ON THE FOLLOWING PLACES IN ANTIGUA FROM 1ST JANUARY
TO 31ST DECEMBER, 1929.

NAME.	No.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL.
Doigs	1	3.50	4.55	6.70	2.80	5.50	6.30	2.75	13.65	5.30	10.05	11.30	8.90	81.30
New Division	2	3.21	0.82	3.19	0.95	6.23	5.46	2.72	13.58	2.88	6.20	7.28	3.89	56.41
Cades Bay	3	4.90	1.25	5.55	0.90	2.60	4.90	5.94	5.90	4.42	3.82	7.60	4.42	55.20
Body Ponds	4	2.30	1.57	5.14	1.93	5.72	4.84	2.15	11.60	2.83	4.97	7.51	3.81	54.37
Bendal Factory	5	2.48	1.47	4.36	1.42	5.70	4.86	1.97	10.14	2.26	5.60	7.64	4.00	51.90
Sandersons	6	2.59	1.50	5.52	0.66	5.16	3.86	2.15	8.00	4.50	3.25	10.43	4.18	51.80
Wallings (Hill)	7	2.16	1.13	5.45	1.77	6.16	4.47	2.49	7.46	4.29	2.40	11.03	2.56	51.47
Wallings (Dam)	8	2.18	1.09	5.41	1.79	5.98	4.37	2.40	7.20	4.27	2.47	10.15	2.49	49.80
Claremont	9	3.08	1.10	6.00	1.08	4.49	4.67	2.60	7.31	2.66	2.73	11.21	2.73	49.66
Carlisles	10	2.94	2.54	4.60	1.25	4.80	4.00	2.10	9.70	4.10	3.12	5.60	4.30	49.05
Union	11	2.10	2.19	3.04	4.01	5.21	4.20	5.62	6.50	8.22	2.16	3.10	2.80	49.05
The Wood	12	2.31	1.72	4.53	2.85	3.51	3.45	2.25	9.47	3.38	5.05	5.75	4.48	48.75
Botanic Station	13	2.61	1.56	4.84	2.62	4.72	3.25	2.65	8.46	3.45	4.73	5.88	3.73	48.50
Jolly Hill	14	2.28	1.10	3.22	0.60	5.01	3.12	1.70	11.50	3.80	5.00	7.20	3.12	47.65
Yorks	15	1.27	0.52	3.01	0.40	4.89	3.01	2.15	12.07	4.06	4.85	7.73	3.37	47.33
Friars Hill	16	2.07	1.65	4.16	2.86	3.41	3.31	2.34	9.05	3.20	5.80	5.62	3.74	47.22
The Point	17	2.19	1.32	3.68	2.47	5.40	3.24	1.57	7.59	1.86	2.98	6.86	3.95	45.11
Blakes	18	1.95	1.02	4.97	1.19	4.63	3.13	1.81	7.81	6.02	1.94	8.02	2.56	45.05
Belle Vue	19	2.19	1.41	3.55	0.53	4.50	3.41	1.20	8.56	5.15	2.71	8.38	3.10	44.78
Delap	20	1.98	1.25	4.60	0.27	4.28	3.69	1.46	7.97	5.99	0.96	7.93	3.41	44.29
Greencastle	21	2.00	0.73	2.58	0.88	4.39	3.79	1.81	11.36	2.22	5.60	5.77	2.82	43.95
Millars	22	2.60	2.40	4.01	1.25	4.61	3.74	2.02	7.41	4.20	3.21	4.86	3.60	43.92
Yeptons	23	2.25	1.11	4.08	1.39	4.51	3.72	2.16	10.01	1.80	4.92	4.15	3.56	43.66
Morris Loobys	24	1.78	0.75	4.88	0.64	4.48	3.59	2.07	9.59	3.90	1.58	7.83	2.42	43.39
Dimsdale	25	1.35	2.79	4.85	1.16	3.87	3.02	2.14	8.77	4.16	2.11	7.00	1.78	43.00
Crosbies	26	2.33	1.08	3.92	1.95	3.54	2.39	1.80	6.72	4.02	6.34	4.43	4.09	42.61
Creekside	27	1.09	0.84	3.68	1.68	4.31	3.81	2.57	10.84	1.24	4.94	5.32	2.08	42.40
Burkes	28	0.61	0.41	5.10	0.55	4.61	3.59	2.00	8.75	3.79	2.44	8.00	2.16	42.08
Big Duers	29	1.82	1.15	5.44	0.76	4.10	2.78	1.67	5.61	4.74	2.65	7.51	3.00	41.23
Cassada Garden	30	0.84	0.58	5.39	1.86	3.54	4.23	1.20	6.78	3.75	3.21	5.28	3.78	40.50
Parham New Work...	31	1.73	0.96	4.00	0.96	4.75	3.11	1.27	8.50	2.46	3.47	6.23	2.60	40.04
Judges	32	1.42	0.76	4.10	1.38	2.62	3.52	1.84	9.12	2.74	4.72	4.60	2.98	39.80
Langfords	33	1.49	0.73	2.65	2.30	2.91	3.53	1.61	8.36	2.36	5.85	4.05	3.64	39.48
Weatherills	34	1.70	1.04	3.14	2.57	3.24	2.84	1.32	6.81	2.94	5.10	5.02	3.74	39.46
Antigua Sugar Factory	35	2.19	0.85	4.43	0.64	4.23	3.19	1.36	6.15	4.59	3.35	5.62	2.85	39.45
Willis Freemans	36	1.78	0.73	5.25	0.62	4.26	2.84	1.80	8.80	3.06	1.51	6.18	2.29	39.12

RETURN OF RAINFALL ON THE FOLLOWING PLACES IN ANTIGUA FROM 1ST JANUARY
TO 31ST DECEMBER, 1929.—(continued).

NAME.	No.	JAN.	FEB	MAR.	APL.	MAY.	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL.
Marble Hill	37	1.38	0.70	2.84	3.20	2.97	2.83	1.86	7.27	2.17	6.12	4.05	3.24	38.63
Donovans	38	1.64	0.89	4.03	0.89	3.86	3.36	1.44	5.92	3.62	3.10	6.13	2.99	37.87
Ottos	39	2.18	1.00	3.58	2.08	3.56	3.19	1.98	7.45	1.68	3.32	5.14	2.67	37.83
Cochranes	40	2.15	0.72	4.31	0.54	4.17	2.85	1.66	7.53	4.15	1.92	6.01	1.76	37.77
The Diamond	41	2.23	1.38	4.07	0.65	4.40	3.65	1.72	6.10	3.35	1.65	6.21	2.10	37.51
High Point	42	1.34	0.47	3.23	0.45	2.75	3.68	1.40	8.88	5.06	3.60	4.22	2.37	37.45
Lyons	43	1.71	0.90	5.20	0.88	4.28	2.94	1.94	6.70	1.89	2.25	5.76	2.66	37.11
Potters	44	5.86	1.85	1.22	2.15	1.60	0.80	1.00	8.15	2.70	5.30	0.90	5.20	36.73
Fitches Creek	45	1.64	1.33	3.99	0.90	3.84	3.13	1.26	6.28	3.48	3.23	4.81	2.67	36.56
Hill House	46	1.60	0.74	2.94	2.40	3.14	2.46	2.30	8.46	3.25	3.31	4.32	2.07	36.45
Vernons	47	1.25	0.60	2.69	0.45	3.19	2.89	1.12	7.66	3.30	2.90	7.60	2.12	35.77
Thibou Jarvis	48	1.36	0.71	2.61	1.75	2.47	3.38	1.46	6.83	3.26	5.17	3.78	2.81	35.59
Cedar Hill	49	1.55	0.72	2.56	0.60	3.55	3.13	1.35	6.70	3.49	2.83	6.38	2.48	35.34
Cooks	50	1.80	1.10	2.50	2.85	2.84	3.51	1.67	8.85	0.60	2.60	4.00	2.70	35.02
Parham Lodge	51	0.80	0.81	3.95	0.93	4.35	2.91	1.08	7.00	2.34	2.21	6.01	2.54	34.93
Gilberts	52	1.83	0.83	4.23	0.63	3.40	2.83	1.21	7.55	1.54	2.69	5.82	2.29	34.85
Cedar Valley	53	0.87	0.64	2.46	2.30	1.43	3.02	1.17	7.12	2.81	4.73	4.76	2.62	33.93
Pares	54	1.20	0.74	3.98	0.26	3.59	2.62	1.31	6.03	2.72	2.72	6.26	2.05	33.48
Coconut Hall	55	1.37	0.61	3.99	0.56	2.93	2.38	0.59	5.88	3.42	2.85	6.15	1.90	32.63
Parham Old Work	56	1.25	0.66	2.30	0.40	2.85	2.40	1.12	7.30	3.12	2.45	6.56	2.17	32.58
Ffryes	57	1.49	0.46	5.10	0.63	2.90	2.56	0.89	6.14	1.87	1.79	5.32	2.62	31.77
Montpelier	58	0.92	0.72	4.11	0.88	3.45	2.80	1.22	6.65	1.25	1.48	5.30	2.31	31.09
Long Lane	59	1.33	0.77	4.88	0.65	3.25	2.90	0.93	5.76	1.56	1.95	5.03	1.91	30.92
Gaynors	60	0.77	0.75	3.24	0.92	2.76	2.93	0.50	7.11	2.76	1.80	5.23	1.65	30.42
Weirs	61	1.65	0.00	2.34	0.79	4.22	1.89	1.21	4.23	5.13	2.18	4.49	2.25	30.38
Mercers Creek	62	1.32	0.89	3.37	0.90	2.70	2.02	0.91	5.68	2.45	1.74	5.60	2.00	29.58
Collins	63	0.97	0.86	3.70	1.00	2.70	2.83	0.95	5.75	2.13	1.92	4.73	2.04	29.58
Blackmans	64	1.27	0.50	3.18	0.47	3.12	2.21	0.49	5.59	4.20	2.30	4.02	2.06	29.41
Comfort Hall	65	0.60	0.00	2.40	0.72	3.20	1.70	0.54	7.20	1.20	1.10	5.80	1.94	26.40
Mayers	66	0.60	0.00	2.36	0.77	2.91	1.69	0.60	6.65	1.30	1.06	5.85	1.63	25.42
Codrington Village Barbuda	...	3.50	1.37	5.51	2.22	0.60	2.48	1.75	6.19	1.54	4.05	7.91	2.68	39.80

METEOROLOGICAL SUMMARY, 1929. KEPT AT THE BOTANIC STATION, ANTIGUA.

MONTH.	THERMOMETER.								BAROMETER READING.		BOTANIC STATION. RAINFALL.	BAROMETER CORRECTED.		THERMOMETER.	
	DRY.		WET.		RELATIVE HUMIDITY %		MAXIMUM.	MINIMUM.	9 A.M.	3 P.M.		HIGHEST.	LOWEST.	HIGHEST MAX.	LOWEST MIN.
9 A.M.	3 P.M.	9 A.M.	3 P.M.	9 A.M.	3 P.M.	...	...	30.061	29.962	30.134	29.843	...	...		
January	...	...	...	...	...	...	...	30.022	29.985	30.157	29.887	...	...		
February	...	...	...	...	...	...	...	30.060	29.989	30.139	29.892	...	...		
March	...	...	...	...	...	...	...	30.049	29.954	30.134	29.896	...	...		
April	...	...	...	...	...	...	...	30.058	29.979	30.113	29.951	...	...		
May	79.5	81.3	76.0	77.5	83.1	81.7	83.5	72.6	29.975	30.061	29.923	...	...		
June	81.4	82.5	79.5	80.4	88.0	89.2	85.2	73.7	30.031	29.975	29.951	...	...		
July	82.6	83.6	79.5	80.3	85.3	87.5	87.1	75.7	30.053	30.004	29.946	...	...		
August	82.1	82.5	79.2	79.8	89.2	86.3	86.6	73.9	29.997	29.932	29.885	...	...		
September	83.1	83.6	79.9	81.2	84.4	88.2	87.2	74.8	29.997	29.890	29.846	...	...		
October	82.6	83.3	79.3	80.3	83.5	84.4	86.6	74.8	29.945	29.862	29.737	...	...		
November	81.0	81.1	77.9	78.9	84.8	89.3	83.9	73.4	29.950	29.878	29.769	...	...		
December	78.3	79.6	76.0	77.4	90.0	89.2	82.2	71.0	30.074	29.940	29.914	...	...		
Means for the Year ...	81.3	82.1	78.4	79.4	86.0	86.9	85.3	73.7	30.021	29.946	...	...	...	...	
											48.50				

Highest Maximum Temperature = 91° on 18 and 22 Sept. and on 23 Oct., 1929.
 Lowest Minimum Temperature = 68° on 14 December, 1929.
 Highest Barometer (corr.) 30.157 on 22 February, 1929.
 Lowest Barometer (corr.) 29.737 on 30 October, 1929.
 Greatest Rainfall in 24 hours 2.43 ins. on 12 August, 1929.
 Earthquakes recorded = 5 on 2, 12 January, 24 April, 27 May and 22 August, 1929.

Government Laboratory for the Leeward Islands.
19th April, 1930.

A. E. COLLENS, F.I.C., F.C.S.
Government Chemist and Superintendent of Agriculture.

Imperial College of Tropical Agriculture.

The College is situated at St. Augustine, Trinidad, amid
beautiful and healthful surroundings. It offers a

**Three Year Diploma Course and Post-Graduate and
Special Courses.**

with facilities for research and training
in Tropical Agriculture.

Chairman of Governors:

SIR JAMES CURRIE, K.B.E., C.M.G.

Principal:

MR. G. EVANS, M.A., C.I.E.

Commissioner of Agriculture for the West Indies:

PROF. H. A. BALLOU, M.Sc.

Assistant Commissioner of Agriculture for the West Indies:

MR. G. A. JONES, DIP. AGRIC. (*Bangor*).

Dean:

PROF. H. R. BRITTON-JONES, D.S.C., PH.D., (*Lond.*)

SCIENTIFIC AND TECHNICAL STAFF.

Agriculture:

PROF. R. CECIL WOOD, M.A. DIP. AGRIC.,
MR. D. H. BROWN.

Botany and Genetics:

PROF. E. E. CHEESEMAN, M.Sc., A.R.C.S.
MR. R. E. HUNTER, B.Sc.

Chemistry and Soil Science:

PROF. F. HARDY, M.A., DIP. AGR.
MR. P. E. TURNER, M.Sc., F.I.C. (*seconded*).
MR. H. H. CROUCHER, B.Sc. (*Lond.*)

Economics:

PROF. C. Y. SHEPHARD, B.Sc., (*ECON*).

Mycology and Bacteriology:

PROF. H. R. BRITTON-JONES, D.S.C., PH.D., (*Lond.*) D.I.C., A.R.C.S.
MR. A. K. BRIANT, M.A., (*Cantab.*), DIP. AGR. A.T.C.T.A.

Banana Pathologist:

DR. C. W. WARDLOW, PH.D., D.Sc., F.R.S.E.

Banana Physiologist:

DR. L. P. MCGUIRE, M.Sc., PH.D., D.I.C.

Sugar Technology:

PROF. W. SCOTT, B.Sc.
MR. J. G. DAVIES, A.I.C.T.A.

Tropical Sanitation and Hygiene:

PROF. E. A. SEAGAR, M.B., CH.B., D.T.M.

Veterinary:

CAPT. H. V. METIVIER, O.B.E., B.Sc., M.R.C.V.S.

Zoology and Entomology:

PROF. H. A. BALLOU, M.Sc.
ASST. PROF. MR. F. W. URICH, F.E.S., C.M.Z.S.

Editor-Librarian.

G. G. GIANETTI, M.A., DIP. AGRIC. (*ECON.*) (*Cantab.*)

"TROPICAL AGRICULTURE."

Journal of the Imperial College of Tropical
Agriculture.

Published monthly at Trinidad, B.W.I., "Tropical Agriculture" contains
valuable original articles dealing with sugar, cacao, coffee,
tea, cotton, copra and other tropical products. The
information which it contains is of an
essentially practical character.

ANNUAL SUBSCRIPTION RATES.

British Empire.		Other Countries.
6s. post free.	—	7s. post free.
(6d. per copy.)	—	(7d. per copy.)

SPECIMEN COPIES SENT FREE ON REQUEST.

The Editor,

"TROPICAL AGRICULTURE."

ST. AUGUSTINE, TRINIDAD, B.W.I.